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CA. M. 879

Section of mines

1903

MINERAL PRODUCTION OF CANADA

GEOLOGICAL SURVEY DEPARTMENT,
OTTAWA.

ROBERT BELL, M.D., D.Sc. (Cantab), LL.D., F.R.S., I.S.O.,
Acting Deputy Head and Director.

SIR,—I have the honour to submit herewith the annual preliminary statistical statement of the mineral production of Canada for 1903.

Although the figures given herewith are, as stated, 'subject to revision,' they may still be taken as a very close approximation to those which will be given in the final report.

The completed annual report will follow later, and besides containing a revise of the general table of production, will include other details relating to explorations, development, exports, imports, etc. As much of this information is not available till several months after the close of the year, and the compilation and printing necessarily occupy some time, it cannot be completed till well on in the year following the one covered.

I am, sir,
Your obedient servant,

ELFRIC DREW INGALL.

SECTION OF MINES, February 23, 1904.

GEOLOGICAL SURVEY OF CANADA

SECTION OF MINES

SUMMARY

OF THE

MINERAL PRODUCTION OF CANADA

FOR 1903

ELFRIC DREW INGALL, M.E.

Associate of the Royal School of Mines, England, Mining Engineer to the Geological Survey of Canada.

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1904

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GEOLOGICAL SURVEY OF CANADA

SUMMARY OF THE MINERAL PRODUCTION OF CANADA IN 1903.

(Subject to Revision.)

Product.		Quantity. (a)	Value. (a)
†Metallic.			$
Copper (b)	Lbs.	43,281,158	5,728,261
Gold, Yukon.	$12,250,000		
" all other	6,584,490		18,834,490
Iron ore (exports)	Tons.	368,233	922,571
*Pig iron from Canadian ore	"	42,052	707,838
Lead (c)	Lbs.	18,000,000	762,660
Nickel (d)	"	12,505,510	5,002,204
Silver (e).	Oz.	3,182,000	1,700,779
Zinc (i)	Lbs.	900,000	48,600
Total metallic		....	33,707,403
Non-Metallic.			
Actinolite	Tons.	550	3,108
Arsenic	"	257	15,420
Asbestus	"	31,780	891,033
Asbestic	"	10,548	13,819
Chromite.	"	3,383	33,830
Coal	"	7,996,634	15,957,946
Coke (f)	"	544,132	1,663,725
Corundum	"	no returns.	
Felspar	"	13,228	18,066
Fire clay	"	2,317	2,505
Graphite.	"	738	23,745
Grindstones	"	5,538	48,302
Gypsum	"	307,489	384,259
Limestone for flux	"	277,452	259,244
Manganese ore (exports).	"	135	1,889
Mica		....	159,473
Mineral pigments—			
Baryta	Tons.	1,163	3,931
Ochres	"	6,226	32,440
Mineral water		....	100,000
Moulding sand	Tons.	3,568	7,256
Natural gas (g)		....	168,900
Peat	Tons.	1,100	3,300
Petroleum (h)	Brls.	461,336	922,672
Phosphate	Tons.	1,329	8,214
Pyrites.	"	33,530	126,133
Salt	"	53,537	334,088
Talc	"	688	2,064
Tripolite.	"	835	16,700

†It is to be borne in mind that the only general and definite standard for valuing the varying and various products of the metal mining industries of the country is that herein adopted, viz., the final value of their metallic contents at the average market price for the year.

This reduces them to a common datum line for the purposes of this general table and results in such uniformity of presentment that the figures are reasonably comparable from year to year in illustration of the fluctuations and the growth of the different industries.

The non-metallic minerals having a tangible use—value as individual minerals are put down at the average spot value for each.

Whilst this plan of course results in some discrepancies it is adopted as the best

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SUMMARY OF THE MINERAL PRODUCTION OF CANADA IN 1903—*Concluded.*

(Subject to Revision.)

PRODUCT.		Quantity. (*a*)	Value. (*a*)
STRUCTURAL MATERIALS AND CLAY PRODUCTS.			$
Cement, natural rock	Brls.	92,252	75,655
" Portland	"	627,741	1,090,842
Granite			150,000
Pottery			200,000
Sands and gravels (exports)	Tons.	355,792	124,006
Sewer pipe			317,970
Slate			22,040
Terra-cotta, pressed brick, &c			386,532
Building material, including bricks, building stone, lime, tiles, &c			5,650,000
Total structural materials and clay products			8,017,045
" all other non-metallic			21,202,062
Total non-metallic			29,219,107
" metallic			33,707,403
Estimated value of mineral products not returned			300,000
Total, 1903			63,226,510
1902, Total			63,885,999
1901 "			66,359,158
1900 "			64,618,268
1899 "			49,584,027
1898 "			38,697,021
1897 "			28,661,430
1896 "			22,584,513
1895 "			20,648,964
1894 "			19,931,158
1893 "			20,035,082
1892 "			16,628,417
1891 "			18,976,616
1890 "			16,763,353
1889 "			14,013,913
1888 "			12,518,894
1887 "			11,321,331
1886 "			10,221,255

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attainable method for the purposes of this general statement which is practically an advance presentation of the mineral industry as a whole.

The detailed presentation of the particulars of the various subordinate industries from other standpoints is reserved for the annual report of the Mines Section.

* The total production of pig iron in Canada in 1903, from Canadian and imported ores amounted to 297,885 tons, valued at $3,742,710, of which it is estimated 42,052 tons valued at $707,838, should be attributed to Canadian ore and 255,833 tons, valued at $3,034,872, to the ore imported.

(*a.*) Quantity or value of product marketed. The ton used is that of 2,000 lbs.
(*b.*) Copper contents of ore, matte, &c., at 13·235 cents per lb.
(*c.*) Lead contents of ores, &c., at 4·237 cents per lb.
(*d.*) Nickel contents of ore, matte, &c., at 40 cents per lb.
(*e.*) Silver contents of ore at 53·45 cents per oz.
(*f.*) Oven coke, all the production of Nova Scotia and British Columbia.
(*g.*) Gross return from sale of gas.
(*h.*) Includes crude oil sold to refiners and oil sold for fuel and other purposes.
(*i.*) Zinc contents of ores at 5·400 cents per lb.

REMARKS.

The main feature presented by the mineral industry of Canada as a whole consists in the decrease in the grand total of production of a little over one per cent in comparison with the figures for 1902. A comparison of the items for the two years shows the reason for this falling off. The shrinkage in the production of the Yukon placer gold fields accounts for $2,250,000 of the total diminishment of over $2,500,000 in the gold output of the country. This is augmented by over $1,000,000 decrease in the values of the output credited to others of the metallic class, viz., pig iron, silver, lead and nickel. To offset this, the copper, iron-ore and zinc industries exhibit increases aggregating nearly $1,500,000, leaving a minus amount of a little over $2,000,000 against the metallic class as a whole, equivalent to nearly six per cent.

Advances were shown in several of the non-metallic class, notably in coal and coke, limestone, mica, salt, cement and in some of the clay products. The total growth in all the non-metallics showing increases, amounted to nearly $2,000,000, the advance in the coal and coke output accounting for over $1,600,000 of this. As against these non-metallic industries showing increases, decreases are exhibited in the values of the production in asbestus, natural gas, petroleum and a number of others aggregating about $500,000 leaving a net gain in this class of somewhat under $1,500,000 or a little over five per cent to offset the above mentioned falling off in the the metallic class, the final difference in the grand totals for the two years amounting to nearly $660,000, or a proportional decrease of close on one per cent.

Product.	Quantity.		Value.	
	Increase.	Decrease.	Increase.	Decrease.
	p. c.	p. c.	p. c.	p. c.
Metallic—				
Copper	11·54	......	26·97	......
Gold	......	......	......	11·73
Pig iron (from Canadian ore only)	......	41·32	......	32·14
Pig iron (from both home and imported ores)	......	16·77	......	11·80
Lead	......	21·59	......	18·35
Nickel	16·95	......	......	0·47
Silver	......	25·85	......	24·02
Non-metallic—				
Asbestus and asbestic	4·73	......	......	21·20
Coal	11·17	......	10·22	......
Coke	8·38	......	9·51	......
Cement	4·54	......	3·45	......

The above table gives the percentage of growth or decline in regard to the chief items in the general table. It will be noted that decreases both in quantities and values, have been the chief characteristic of the leading metallic industries with the notable exception of copper and nickel. In the latter case, however, the considerable increase in the output has been more than offset by the lower valuation which has been given to the metal following the drop in the average market price for the year. The increase in the copper output was on the other hand considerably enhanced by the higher average market price of the metal. It is interesting to note also that with regard to pig iron, lead and silver, higher market prices modified the heavy falling away in these items. The whole of the group classed as metallic, shows a decrease of 5.8 per cent.

In the non-metallic class the more important contributors are given in the table and all exhibit substantial increases in quantities but lower prices reversed the effect in the case of asbestus and lessened the advantage gained in the case of coal and cement, coke only showing a slight advance. In the grand totals of the non-metallic class the figures for structural materials and clay products show a slight advance of 1.5 per cent, all other non-metallics being credited with an advance of over 6.6 per cent.

1902.		1903.	
Product.	Per cent of total production.	Product.	Per cent of total production.
1 Gold	33·41	1 Gold	29·79
2 Coal and coke	25·05	2 Coal and coke	27·87
3 Building material	8·43	3 Copper	9·06
4 Nickel	7·87	4 Building material	8·94
5 Copper	7·06	5 Nickel	7·91
6 Silver	3·51	6 Silver	2·69
7 Asbestus	1·80	7 Cement	1·84
8 Cement	1·77	8 Petroleum	1·46
9 Pig iron (from Canadian ore)	1·63	9 Iron ore (export)	1·46
10 Petroleum	1·48	10 Asbestus	1·42
11 Lead	1·46	11 Lead	1·21
12 Iron ore (not used in making pig iron in Canada)	1·09	12 Pig iron (from Canadian ore)	1·12

The relative importance of the different mineral industries contributing to the grand total will be apparent from an inspection of the above table in which the figures account for all but about 5 per cent of the aggregate. As usual gold together with coal and coke constitute Canada's most valuable mineral assets and account for 57.66 per cent of the value of the whole mineral output of the country. To the metallic class as a whole must be credited 53.31 per cent of the mineral output, the structural material division contributing 13.15 per cent and the other non-metallic products a little over one third or 33.53 per cent.

The per capita value of the total mineral products for 1903 was $11.29 as compared with $2.23 in 1886, the first year for which figures are available.

Gold.—A decrease of over two and a half million dollars is shown, of which two and a quarter millions is to be ascribed to the decreased output from the Yukon District, leaving approximately a quarter of a million falling off in the other provinces. The Yukon output for the year $12,250,000 is based on the receipts of Canadian Yukon gold at the United States Mint at San Francisco and other receiving offices.

The contributors to the total as formerly, were Nova Scotia, Quebec, Ontario, Saskatchewan, the Yukon Territory and British Columbia.

Silver.—Silver production, according to present indications, shows a considerable decrease, over a million ounces, compared with last year's output. Over 90 per cent of the production is obtained from British Columbia.

Lead.—The production of lead in 1903 has been estimated at about 9,000 tons. The exports, according to custom returns, were 9,314 tons, valued at $426,466. The production is practically all the output of British Columbia mines, no returns having been received of production in eastern Canada.

Copper.—The copper contained in ore, matte, etc., shipped from Canadian mines in 1903, was about 21,640 tons, an increase of 2,238 tons or over 11.5 per cent over the previous year's output. In Ontario and Quebec there was little change, perhaps a slight falling off, the increase being practically all in British Columbia. From the Sudbury district, Ontario, about 13,832 tons of high grade matte were shipped containing 3,576 tons of copper. (see further under nickel). In British Columbia shipments of ore from the boundary district were approximately 625,000 tons in 1903 and from Rossland about 377,000 tons. For statistical purposes the copper is valued at the average price for the year of electrolytic copper in New York, viz., 13·235 cents per pound. This is an increase on the average price for 1902 of nearly 14 per cent.

Nickel—The following were the results of operations on the nickel copper deposits in 1903:

	Tons
Ore mined	136,633
Ore smelted	207,030
Matte shipped	13,832
Matte in stock at end of year	1,246
Copper contents of matte shipped	3,576
Nickel " "	6,258
Value of matte shipped	$2,686,469

According to customs returns exports of nickel were as follows:

	Lbs.
To Great Britain	1,335,677
United States	11,363,470
Other countries	80
Total	12,699,227

Zinc.—About 1,000 tons of zinc ore, worth $10,500 were shipped to Swansea, Wales, from the Long Lake zinc mine in the county of Frontenac Ont. No returns have been received of zinc production in British Columbia.

Iron.—Exports of Iron Ore were 368,233 tons valued at $922,521. About 81,035 tons of iron ore from Canadian mines were charged to blast furnaces in Canada and valued at the furnace at about $247,229.

In addition to the above Canadian ore, 485,911 tons of imported ore valued at $823,147 were used in Canadian furnaces. The total quantity of pig iron manufactured from both Canadian and imported ores was 297,885 tons of which 19,614 tons were made with charcoal as fuel and 278,271 tons with coke.

Arsenic.—The arsenic plant at Deloro, Ont. was worked for three months only producing 257 tons of white arsenic valued at $15,420. Exports of arsenic were 198 tons valued at $10,583.

Coal and Coke.—An increased production is reported from all the provinces in which coal mining is being carried on.

The Dominion Coal Company, the largest producing company in Nova Scotia increased its output notwithstanding the serious check caused by the fire in Dominion No. 1 colliery in March. The Nova Scotia Steel and Coal Company also shows very largely increased output from their Sydney mines.

Considerable activity has been displayed in the operation of the mines in the North-west Territories, especially on the eastern slope of the Rocky Mountains in the district about Blairmore.

In British Columbia the output of the Crows Nest Pass Coal Company exceeded that of 1902 by 49·8 per cent and the company has made substantial progress in the development of their properties. On the coast the Western Fuel Company are actively operating and developing the properties formerly worked by the New Vancouver Coal Mining and Land Co. The Wellington Colliery Company have been opening up a seam of anthracite coal from which it is expected shipments will soon be made.

Corundum.—Returns have not yet been received of production of corundum, but railway shipments at Barry's bay are reported at 1090 tons which may however include corundum ore as well as grain corundum.

Asbestus.—The production of asbestus divided into crude and mill stock was as follows :

	Tons.	$
Crude	3,134	361,867
Mill stock	27,995	554,021
Total	31,129	915,888

Exports of asbestus according to Customs returns were :

31,780 tons valued at $891,033.

The product was all obtained from the Eastern Townships, Quebec.

Cement.—The production of natural rock cement is at present small in comparison with the output of Portland, and the sales in 1903 were less by 35,679 barrels than in 1902. Detailed statistics for 1903 were as follows :—

Cement sold during the year	92,252	brls. valued $75,655.
Cement manufactured	96,152	"
Stock on hand January 1, 1903	23,000	"
" December 30, 1903	26,000	"
Wages paid	$29,550	

Portland cement statistics have been partially estimated in the absence of complete returns. The following is probably a close approximation :—

Portland cement sold	627,741	brls. valued at $1,090,842.
" manufactured	714,136	"
Stock on hand January 1, 1903	41,991	"
" December 31, 1903	128,386	"
Wages paid about	$400,000	

The imports of Portland cement in 1903 were

	Cwt.	$
Six months ending June	1,061,358	385,216
" December	1,646,516	674,880
Total	2,707,874	1,060,096

This importation is equivalent to about 773,678 barrels of 350 pounds each.

EXPORTS of Products of the Mine, Calendar Year 1903.

PRODUCT.		Quantity.	Value.
Arsenic			$
Asbestus	Lbs.	395,573	10,583
Barytes	Tons.	31,780	891,033
Coal	Cwt.	406	368
Chromite	Tons.	1,954,629	5,219,860
Felspar	"	1,013	20,524
Gold bearing quartz, dust, nuggets, &c	"	13,760	23,319
Gypsum, crude	$	....	17,566,540
Copper, fine, in ore, &c	Tons.	....	....
" black or coarse, cement copper and copper in pigs	Lbs.	37,039,175	3,702,368
Lead in ore, etc	"	203,701	25,226
Nickel in ore, matte, &c.	"	18,624,303	426,466
Platinum in ore, concentrates, &c	"	12,699,227	1,116,099
Silver in ore, &c	Oz.	283	304
Mica	"	3,360,192	1,989,474
Mineral pigments	Lbs.	956,244	196,020
" water	"	1,351,475	12,770
Oil—	Gals.	5,709	3,585
crude			
refined	"	350	15
Ores—	"	1,013	190
Antimony			
Iron	Tons.	33	4,332
Manganese	"	368,233	922,571
Other	"	135	1,889
Phosphate	"	4,942	143,470
Plumbago, crude	"	1	20
Pyrites	Cwt.	8,235	26,230
Salt	Tons.	21,067	59,604
Sand and gravel	Lbs.	11,915,648	5,927
Stone, ornamental	Tons.	355,792	124,006
building	"	129	783
for manufacturing of grindstones	"	140,476	45,512
Other products of the mine	"	2,019	16,925
Manufactures—		....	157,568
Bricks			
Cement	M.	891	5,699
Coke	$	....	2,851
Grindstones, mfd.	Tons.	32,608	135,957
Gypsum, ground	$	....	10,734
Iron and steel—	"	....	12,457
Stoves			
Castings	No.	960	11,718
Pig iron	$	....	138,352
Machinery, N.E.S.	Tons.	4,400	78,382
Scrap iron or steel	$	....	416,397
Hardware, N.E.S	Cwt.	131,263	88,839
Steel and manufacturing of	$	....	88,285
Lime	"	....	2,078,328
Metals, N.O.P	"	....	131,412
Plumbago, manufactures of	"	....	554,900
Stone, ornamental	"	....	17,412
" building	"	....	7,097
	"	....	587